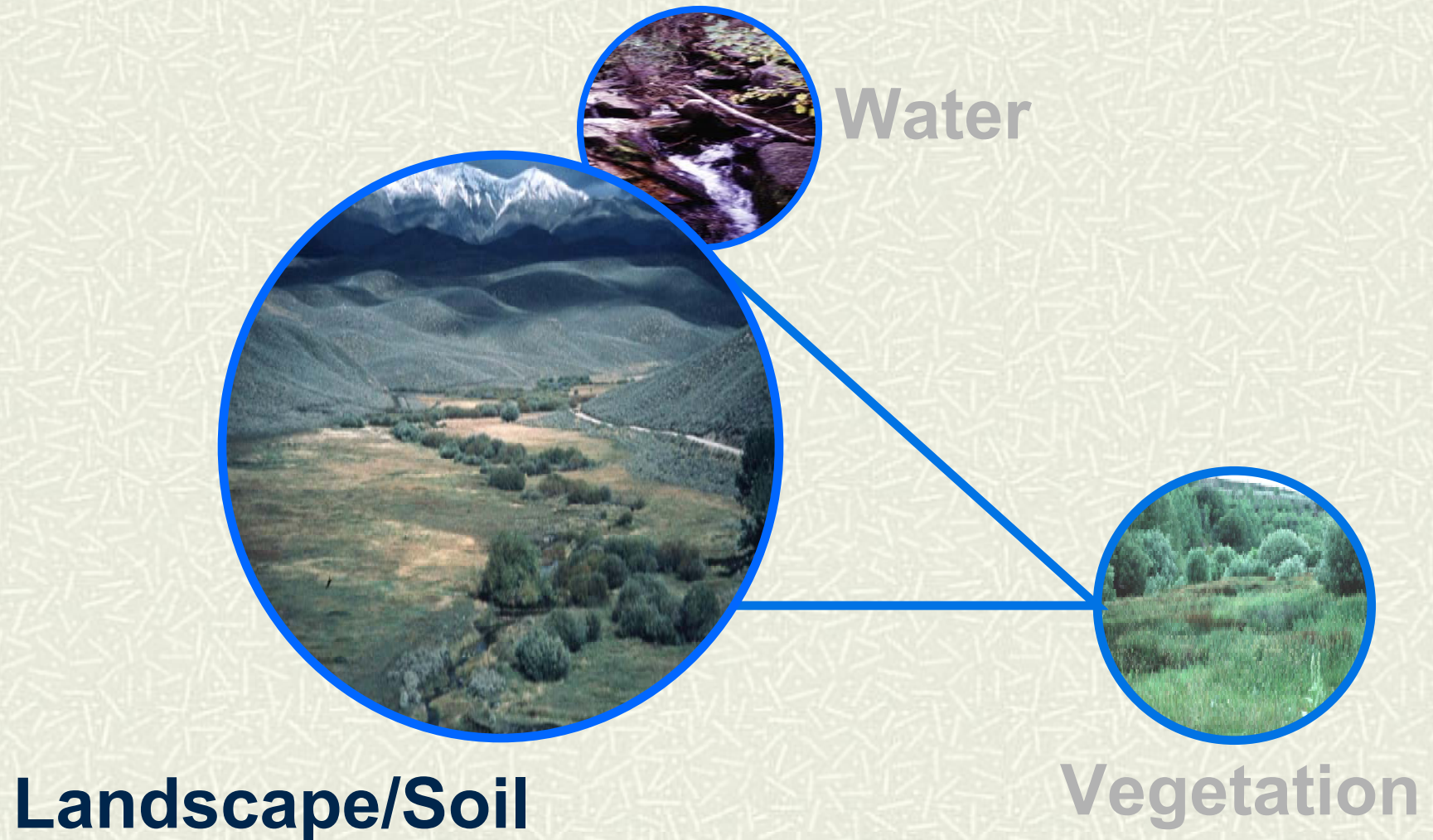
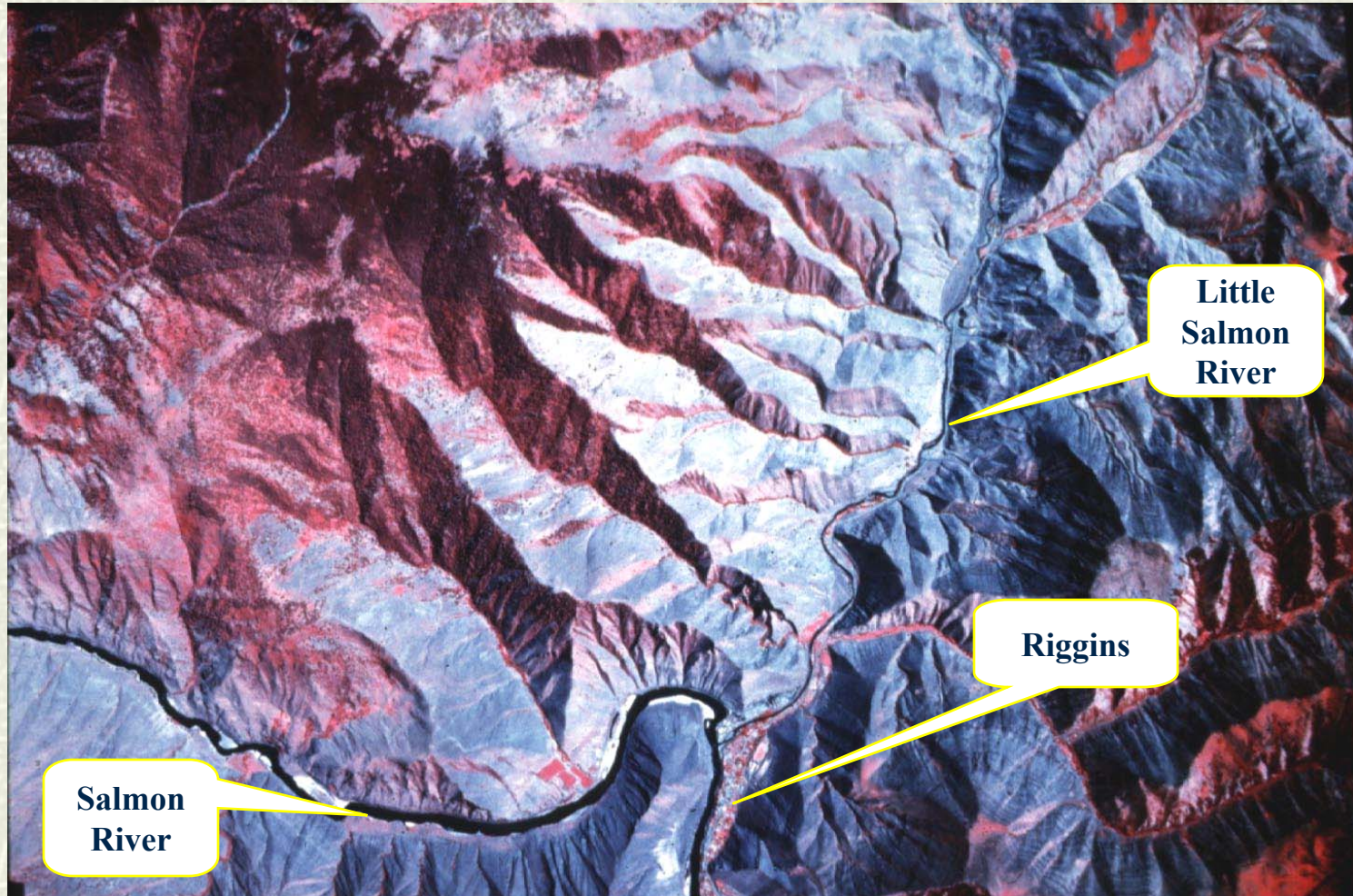


# Natural Riparian Resources





# Landform





# King Hill Creek





# Clover Creek









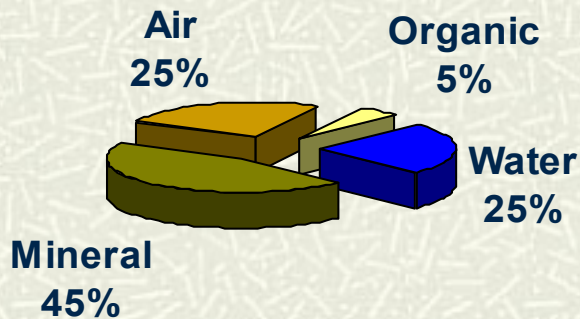
# Riparian Soils



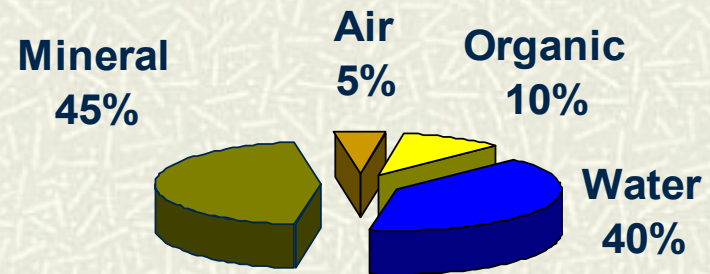


# Volume composition of a silt loam surface soil

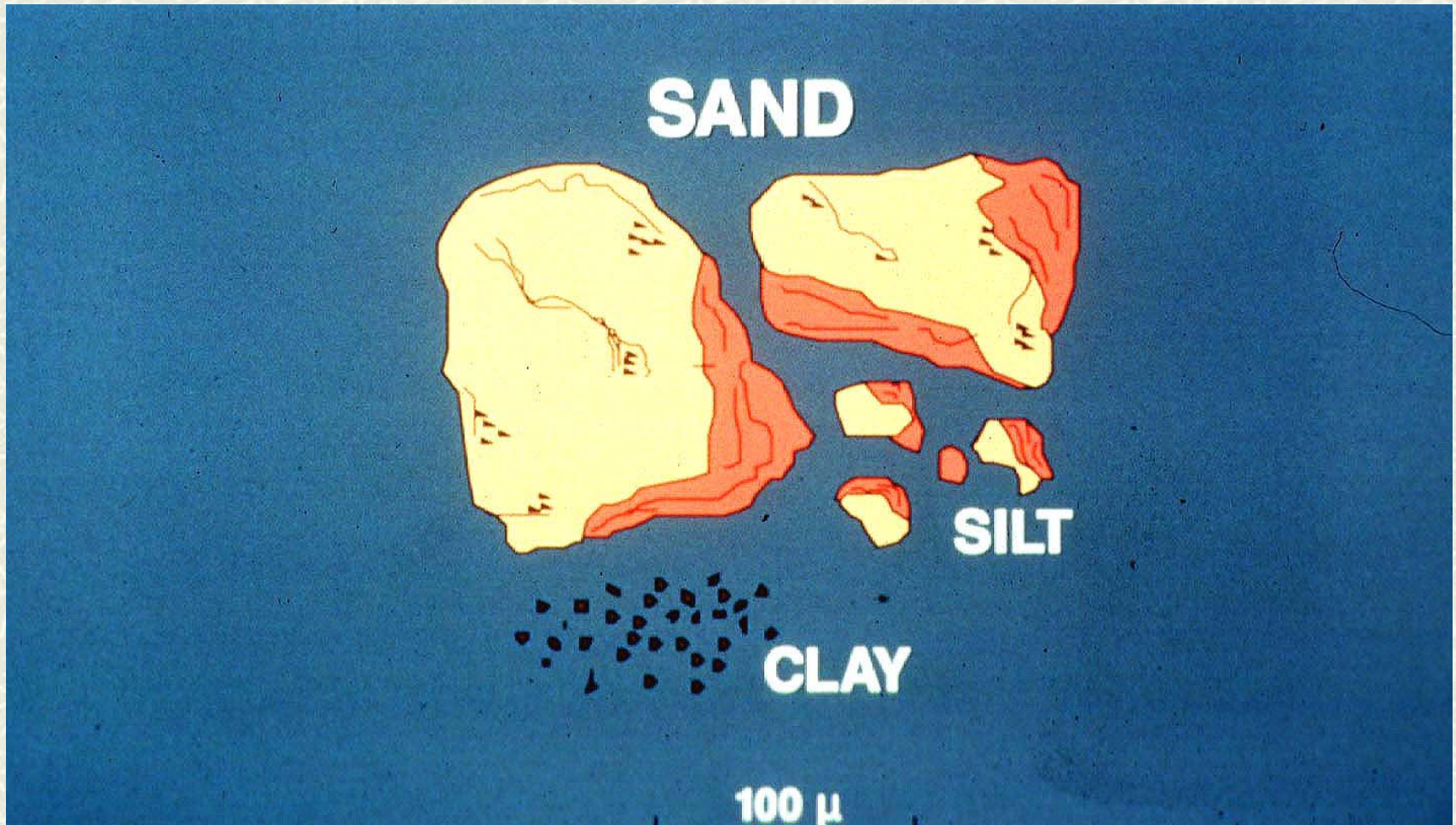
**Dry soil**



**Saturated Soil**



# Soil Particle Size





# Granite





# Basalt







**Wind Blown and Water Deposited Soil**



# Mill Creek



11/11/08



# Boulder Creek



8/26/97

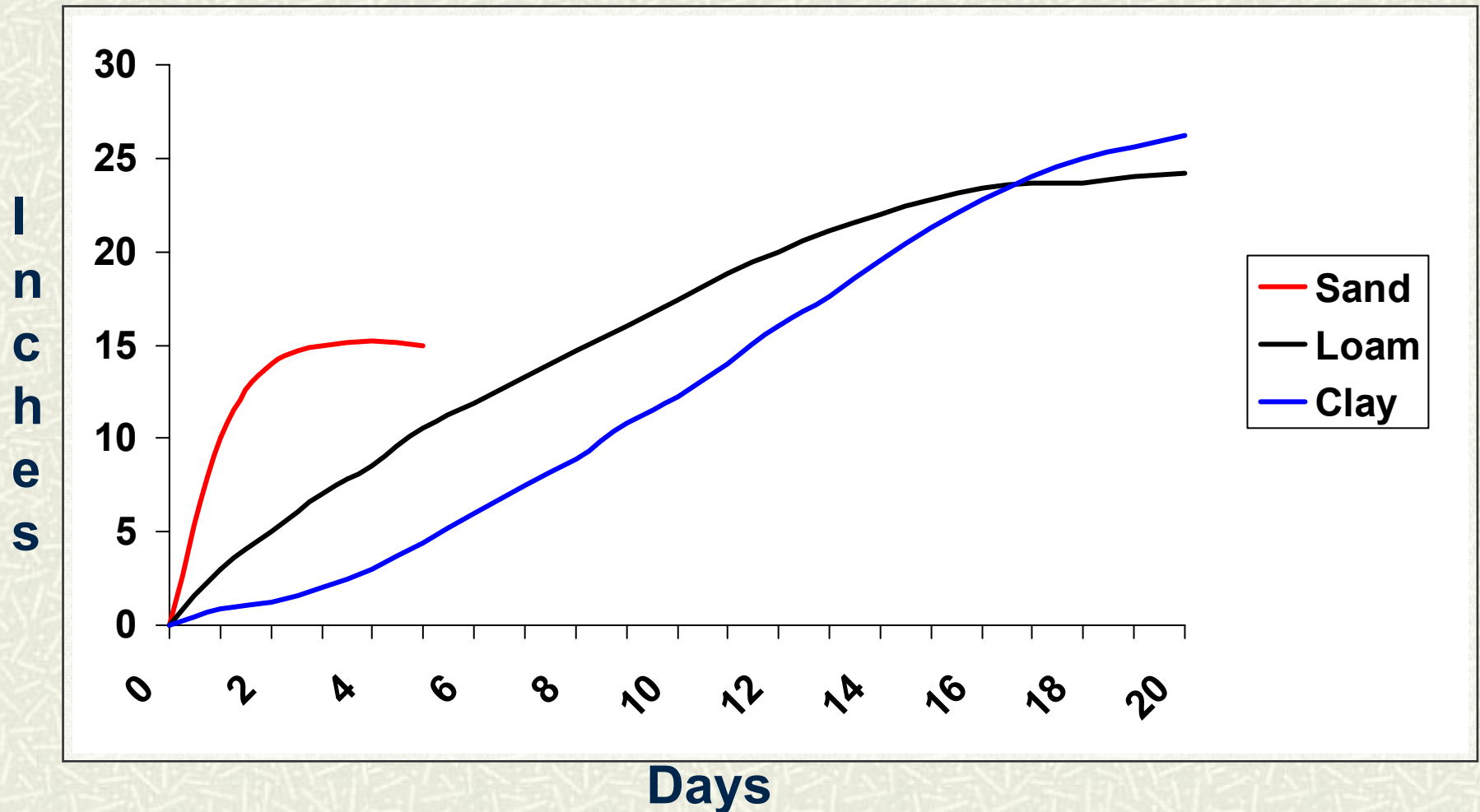


# Harney Lake





# Upward Movement of Water in Soil







**Wetted Soil**

8 27 '98



# Partridge Creek





# Henrys Fork Snake River



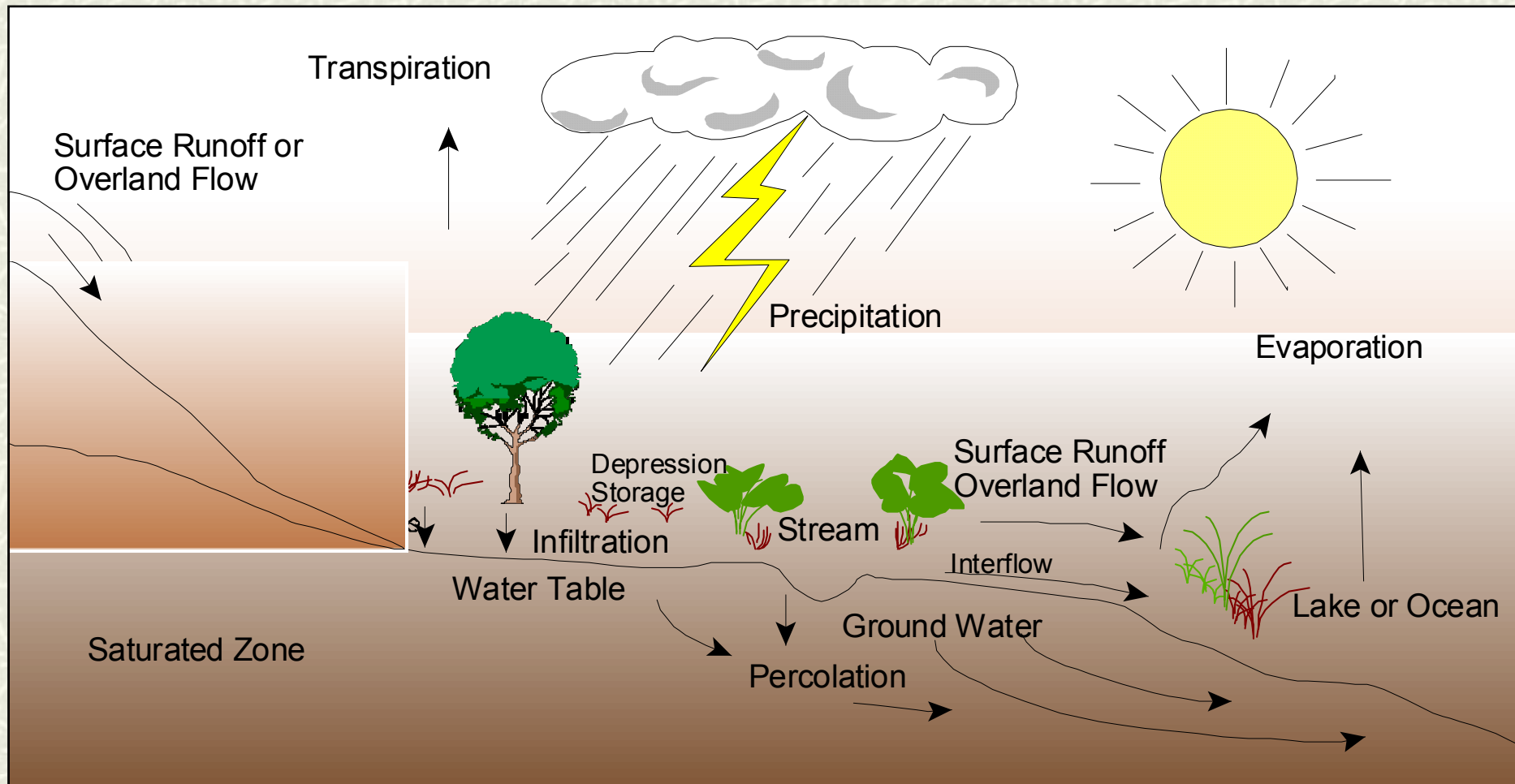


# Russell Bar





# Hydrologic Cycle





# Aerobic vs. Anaerobic





# Boulder Creek



9/10/51  
Boulder Cr.  
P.O. 11/11/51  
Toussaint #17  
Dunbar







# Standard Checklist (lotic)

Yes	No	N/A	Erosion/Deposition
			<b>13) Flood plain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy</b>
Rationale:			
			<b>14) Point bars are revegetating with riparian-wetland vegetation</b>
Rationale:			
			<b>15) Lateral stream movement is associated with natural sinuosity</b>
Rationale:			
			<b>16) System is vertically stable</b>
Rationale:			
			<b>17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)</b>
Rationale			



**13) Flood plain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy**

**# Proper function lotic riparian-wetland areas must dissipate energy**

- Appropriate channel size and shape
- Fully developed floodplain
- Adequate roughness
- Appropriate vegetation cover





- # Is the floodplain fully developed (see question 1)?
- # Is there sufficient overflow channels, vegetation, rock, and woody debris to handle high flows without degrading?
- # Is the floodplain capable of growing woody species?
- # Are woody riparian species present on the floodplain and/or streambanks?
- # Is the sinuosity and width/depth ratio appropriate for the site (see Question 3)?





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- # Is the sinuosity and width/depth ratio appropriate for the site (see Question 3)?



**14) Point bars are revegetating with riparian-wetland vegetation**





- # Is there a distinct and relatively continuous line of stabilizing riparian vegetation on the point bar?
- # Is there sprout and/or young woody species on the point bar?
- # Is herbaceous stabilizing riparian species expanding?





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## Question 15 - Lateral stream movement is associated with natural sinuosity

- # The channel is appropriate for the landform and in balance with normal processes
  - Channel movement is a slow process
  - Appropriate vegetation and/or streambank cover
  - Channel aggrading
  - Multi-thread channel vs. single thread channel





- ⌘ Does the streambanks have an adequate amount of stabilizing vegetation (see Questions 9 & 11)?
- ⌘ Is there evidence of rapid point bar growth (see question 3?)
- ⌘ Is the channel widening? Is the channel aggrading?
- ⌘ Is the channel multi-thread ("D" channel type)?
- ⌘ Is sinuosity appropriate for the valley type (see Question 3)?





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- # Is the channel multi-thread ("D" channel type)?
- # Is sinuosity appropriate for the valley type (see Question 3)?



## 16 - System is vertically stable

- # Is the down-cutting within natural rates or accelerated
- # Accelerated erosion, down-cutting
  - Headcut
    - Potential to move up through a wetland
    - Lower water table



## Flat Canyon Creek



- # Is there a head cut capable of moving upstream within or below the reach?
- # Are there hydrologic modifiers such as abandon beaver dams, logs, or structures that have water moving under them?
- # Is sediment or debris accumulation causing the water to flow out of the channel?



## Sage Creek

- # Is there a head cut capable of moving upstream within or below the reach?
- # Are there hydrologic modifiers such as abandon beaver dams, logs, or structures that have water moving under them?
- # Is sediment or debris accumulation causing the water to flow out of the channel?







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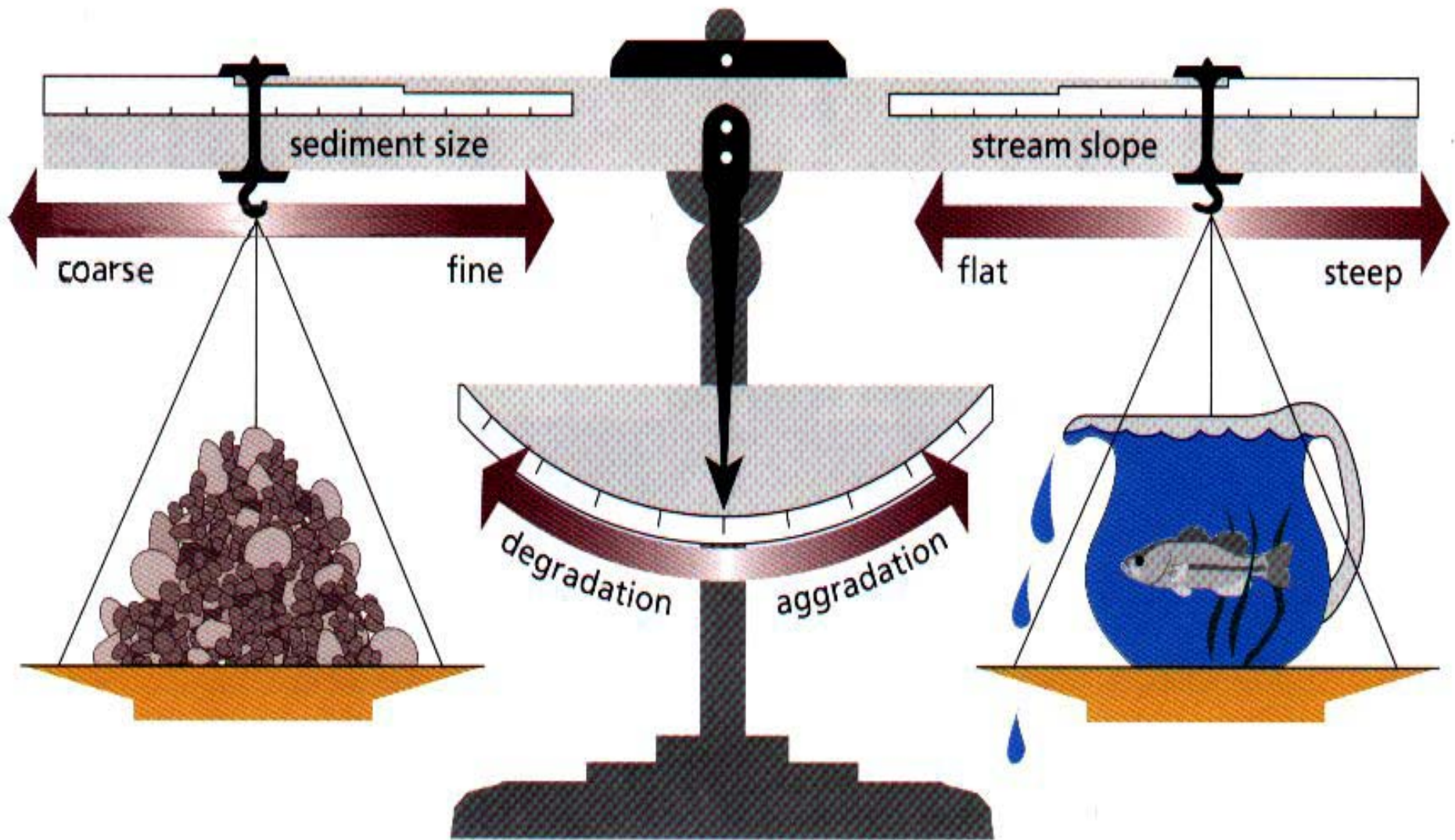




# **17 - Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)**

- # Streams transport water and sediment
- # Increases or decreases in water
  - Channel degradation
  - Sediment transport
  - Channel erosion
- # Erosion increases sediment
  - Channel
  - Upland or side channels





$$Q_s \cdot D_{50} \propto Q_w \cdot S$$

Rosgen, 1996





- # Is there evidence of increased water flow such as channel degradation or channel erosion (see Question 5)?
- # Are there mid-channel bars, sediment filled pools, sand/silt/clay channel bottoms (see question 3)?
- # Is there channel braiding?
- # Are streambanks stable (see Question 11)?



# James Creek



- # Is there evidence of increased water flow such as channel degradation or channel erosion (see Question 5)?
- # Are there mid-channel bars, sediment filled pools, sand/silt/clay channel bottoms (see question 3)?
- # Is there channel braiding?
- # Are streambanks stable (see Question 11)?



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- # Is there channel braiding?
- # Are streambanks stable (see Question 11)?





## Sand Creek



- # Is there evidence of increased water flow such as channel degradation or channel erosion (see Question 5)?
- # Are there mid-channel bars, sediment filled pools, sand/silt/clay channel bottoms (see question 3)?
- # Is there channel braiding?
- # Are streambanks stable (see Question 11)?